

Bristol; Mr. E. J. Lewis, 4, Elwick Road, Ashford; Mr. T. Maddison, South Bailey, Durham; Mr. W. E. Mousley, Orchard House, Mundesley; and Prof. Enzo Reuter, Helsingfors, Finland.

Lord Walsingham exhibited a series of the larger and more striking species of *Xyloryctina*, a sub-family of the *Gelechiidae*, especially characteristic of the Australian fauna. The series illustrated the life-histories and the great disparity in colour and form between the sexes of many species. He also gave an account of the family, chiefly from notes by Mr. Dodd, of Queensland, with especial reference to the habits of the larvæ, which live in holes in tree-trunks, to which they drag leaves in the night for the next day's consumption. Mr. Gahan, a locust, *Acrydium ægyptium* (= *tartaricum*), taken in a house in Hanover Square, and probably imported in vegetables. Mr. Kirkaldy, species of water-bugs, including *Enicocephalus culicis* and *Gerris robustus*, both taken for the first time in Mexico. A discussion arose on the reported occurrence of the San José scale, *Aspidiotus perniciosus*, in Great Britain. Mr. R. Newstead stated that during nine years' work on *Coccidæ*, he had never once met with this species among scale-insects taken in this country and sent to him for identification. It was impossible even for an expert to distinguish it, without careful microscopical preparation and examination, from among the thirty or more known species of *Aspidiotus*, and any attempt to identify it on imported fruit by naked-eye observation, or with a hand-lens, was, therefore, quite impracticable. The risk of its distribution by being imported on fruit was small; there was, however, much more likelihood of its introduction on plants. At the same time, he saw no reason to suppose that it would be more injurious in this country than the common *Mytilaspis pomorum*; in America the San José scale had several generations in the year, sometimes as many as five, but in this country it would probably conform with the habits of all other scale-insects at present investigated, and become single-brooded.—W. F. H. BLANDFORD, *Hon. Secretary*.

## OBSERVATIONS ON *COCCIDÆ* (No. 17).

BY R. NEWSTEAD, F.E.S.,

CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

### GYMNASPIS, *n. g.*

♀ puparium without larval exuviæ or secretion; composed entirely of the naked moulted skin of the second stage ♀. ♂ puparium with larval exuviæ and secretory margin as in *Aonidia*.

### GYMNASPIS ÆCHMÆ, *n. sp.*

♀ puparium composed entirely of the naked moulted skin of the 2nd stage ♀, which completely envelopes the adult insect, as in *Aonidia* and *Fiormia*; high convex, more or less circular, anal extremity usually pointed; margins produced and convex, entire, or constricted at the spiracles; the constrictions irregular and frequently assymetrical; irregularly and widely punctate; shining bronzy-black, opaque, very strong; the ventral surface as much so as the dorsal. The ventral surface is usually covered with a delicate white secretion, which bears impressions of the leaf-structure, and sometimes projects a little beyond the margin of the puparium.

Diam., 50-90 mm.

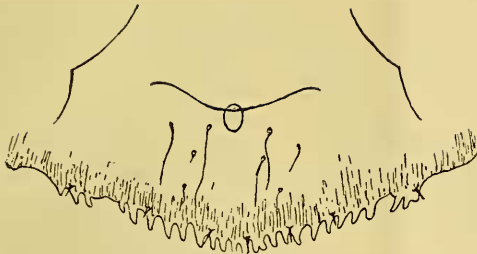


Fig. 1.

(fig. 1) without circumgenital glands; vaginal opening, and anus opposite; margin with a series of projecting tubercles or extensions of the body wall, and a few short spines. And there are a few very slender tubular spinnerets arising from the extreme margin.

Puparium of second stage of ♀ purplish-brown, circular, with a broad marginal secretion; larval exuviae central, naked, black or bronzy-black. Diam., .50 mm.

Larva comparatively large, short-ovate, pale mauve; eyes black. Antennæ of five joints. Pygidium with two pairs of lobes; median lobe largest, and notched towards their distal extremity. There is a pair of broad, deeply fringed plates between the median lobes; and one of the same character between the median and second pair of lobes; and two others beyond them, the last being much the smallest, often taking the form of a series of simple plates.

*Hab.*: on *Æchmea aquilega*, Royal Gardens, Kew, April 24th, 1897.

Mr. Green has included in the genus *Aonidia* his *A. bullata*, an insect which resembles my own in the character of the ♀ puparium; but it is anomalous in the genus, and should, I think, be removed.\*

In all other known species of *Aonidia*, the larval moult, and a varying quantity of secretory matter forms part of the puparium. *Gymnaspis* is distinguished by the absence of both.

#### ASPIDIOTUS BRITANNICUS, *n. sp.*

*Aspidiotus hederæ*, Newstead, Ent. Mo. Mag. (1896), p. 279, *nec* Vallot.

Puparium of adult ♀ circular, or approximately so, moderately convex. Colour, dusky ochreous, with a broad smoky-brown central zone. Exuviae central, or a little to one side; those of the larva dark yellow or dull orange, secretory covering very thin. Second secretory covering smoky-brown. Diam., .75-2 mm.

Adult ♀ translucent yellow, short-ovate; with distinct segmentation. Pygidium (fig. 2) with four or five groups of circumgenital glands; the anterior group (rarely present) consists of 2-3, the anterior laterals from 7-10, the posterior laterals from 7-8. Vaginal opening a little cephalad of the centre. Subdorsal groups

\* Under date December 12th, 1897, Mr. Green writes—"there are certainly good grounds for separating *Aonidia bullata* from that genus, now that we have a second species to go with it."



Fig. 2.

of tubular spinnerets long, the longest extending almost to the base of the pygidium, connecting pores towards the margin on both dorsal and ventral surface. Margin of pygidium with three pairs of well developed and widely separated lobes; the median and second pairs subequal, are deeply notched, or emarginate at the extremity of the margins; third pair smallest. Plates comparatively short; median, second and third pairs narrow, with one to three apical divisions. The position of the spines are indicated in the figure.

Puparium of the ♂ similar to that of the second stage ♀; more or less circular, contracted forms elongate or widely ovate. Colour, bright pale fulvous; larval exuviae central, usually bright orange-ochreous; secretory covering thin, smooth and transparent. Diam., 1 mm.

*Hab.*: on holly (*Ilex aquifolium*, L.) at Teddington, near London.

This is the species which was provisionally recorded (Ent. Mo. Mag., 1896, p. 279) under the name of *Aspidiotus hederæ*, Vall. As the latter is now considered a var. of *A. nerii*, Bouché, the Teddington insect appears to be an undescribed one, and quite distinct.

I am indebted to Mr. R. McLachlan for the liberal supply of specimens.

#### MYTILASPIS CITRICOLA, Packard.

On Citrus; Lekie Lagos, 1897.

Received from Major Ewart. I believe this and the following species have not previously been recorded from the West Coast of Africa. The scales almost covered the small branches which were sent to me; judging from this I should imagine the insects to be injurious to the trees.

#### ISCHNASPIS FILIFORMIS, Douglas.

Abundant on stems of coffee; Lekie Lagos.

Received from Major Ewart. The scales looked remarkably like small, narrow, black scars or dead stomata.

#### CEROPLASTES PERSONATUS, *n. sp.*

Waxy covering of adult ♀ dirty white, much stained with rusty-brown; the

lateral plates (six in number) are flat, and slightly reflexed at the extremities; anterior pair short and broad, lateral pair largest, posterior pair much the smallest. I can find no trace of neuclei in the plates, but there is a single nucleus on the low convex dorsum.

Long, 3 mm.; wide, 3.50 mm.

Adult ♀ short-ovate; derm, after treatment with potash, transparent, is thickly set with triangular spinnerets, bearing markings which give them the appearance of miniature grotesque masks (fig. 4); there are also many small circular spinnerets. Antennæ (fig. 3) of six joints; the third joint very long, forms nearly one-half of the whole antennæ; formula 3216 (45). Legs ordinary. Rostral filaments short. Anal dorsal lobes flat and triangular, as in *Lecanium*; apex with a single short hair, and just within the apex a very long one. Anal ring with six long stout hairs. Stigmatic area (fig. 5) above with a large, blunt, bidentate spine; extreme margin with a series of short spines; and on the ventral area a group of spinnerets extending to the spiracles.

Long, 2 mm.; wide, 1.25 mm.

*Hab.*: Lagos, West Africa. Collected by Mr. Cyril Punch and kindly forwarded to me from Kew by Mr. W. F. H. Blandford.

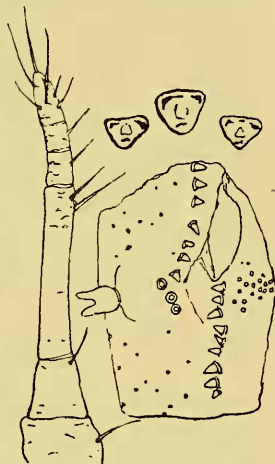


Fig. 3.

Fig. 4.

Fig. 5.

Mr. Punch says the insect is "not very prevalent; nor does it increase greatly as the *Lecanium* and \**Pseudococcus*. Mostly attaches itself to the midribs and secondary nerves on the upper surface of the leaves. Its presence is accompanied by some *Triphosporum*? on the leaves, but not in damaging quantities. Ants do not affect its company; trees do not suffer apparent weakening from its presence. Also seen in Liberia."

The ♀ of this species may be readily distinguished by the flat form of the waxy covering; by the large, bidentate, stigmatic spine; and the curious mask-like spinnerets. Only two examples were sent; but the characters are so well marked that I do not think I have erred in describing it as new.

### LECANIUM VIRIDE, Green.

var. *africanum*, n. var.

♀ adult differing from the type in having very broad, unequal digitules to the claw, and eight jointed antennæ, of which the third is the longest. Mr. Cyril Punch, who collected the specimens, says the insect is "green in colour," and that it is a "blight which does considerable damage all the year round."

\* Mr. Punch probably refers to *Dactylopius longispinus*.

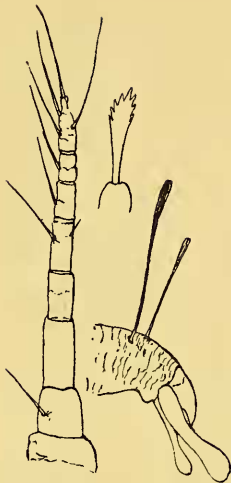


Fig. 6. Fig. 8. Fig. 7.

*Hab.*: Lagos, West Africa, on coffee leaves; 1897. Forwarded with the preceding by Mr. Blandford.

Unfortunately only three specimens were sent to me, but these show a decided departure from typical *L. viride* as described by the author (*Ent. Mo. Mag.*, 1889, p. 248), and may prove a distinct species, but until more adequate material comes to hand I have considered it advisable to place it as a var. In the margin are given a figure of the antennæ (6), the tarsus showing the character of the digitules (fig. 7), and one of the marginal hairs (fig. 8).

#### ERIOCOCCUS GREENI, *n. sp.*

Sac of adult ♀ not separable from *E. insignis*, Newst. Adult ♀ elongate. Derm thickly set with large, sharp spines, but more especially so at the margins; interspersed with them are an almost equal number of long, fine hairs, and large simple spinnerets. Anal lobes normal, with 3-4 spines, and the terminal setæ, which equal in length the tibia and tarsus together. Antennæ (fig. 9) of six joints, of which the third is much the longest; formula 3126 (45). Legs with a few spinose hairs; posterior pair longest, digitules long and slender. Anal ring with eight long hairs; intervening spaces of the ring with large circular convex discs.

Long, 2.50 mm.; wide, 1.20 mm.



Fig. 9.

Fig. 10.

*Hab.*: on grass, at Budleigh Salterton, Devon; Sept. 20th, 1896.

Discovered by Mr. E. Ernest Green, to whom I have great pleasure in dedicating the species.

The character of the antennæ is almost identical with that of *E. insignis*, but easily separable from the latter by the spinose character of the dermis.

#### RIPERSIA FILICICOLA, *n. sp.*

♀ adult rather short ovate; pale ochreous-yellow, or red-pink; almost covered with white secretion, which forms broad irregular plates on the abdominal segments, but on the anterior portion of the body it is confluent and narrow, but presenting

always a broken, jagged edge; the caudal appendages are about three times the length of the marginal plates, and rather stout. Derm thickly set with short tubular spinnerets, more numerous at the extremities and the margins. Space between the antennæ with many very long hairs, and at the margin two groups of short, stout spines. There is also a group of spines at the margin of each segment. Anal lobes rather strongly chitinized, bear several spines, 2-3 short hairs and one very long one, and tubular spinnerets. Anal ring with six hairs, slightly longer than the caudal setæ; both margins of the ring with cell-shaped pores, similar to those in *Dactylopius longifilis*, T. T. Antennæ (fig. 10) of six joints, of which the sixth and third are longest; formula 6321 (45). Legs are without clubbed hairs to the tarsi and claws; hair on coxa apical is nearly as long as the femur. Mentum biarticulate, attenuated, apical joint twice the length of the first, has many fine hairs at apex and margins; filaments a little longer than the mentum. Long, 1.10 mm.

Immediately prior to the formation of the sac the ♀ secretes a quantity of long, straight, glassy, iridescent filaments, which radiate from the margin, but are not attached to the body. These filaments are very characteristic and beautiful objects under the microscope. Sac of the ♀ narrowly elongate and attenuated at the extremities, is composed of a rather loose but toughish fibre, somewhat resembling the silken cocoon of *Cemistoma laburnella*. In the old weathered sacs the iridescence disappears, leaving the filaments a delicate pale blue. Long, 2-2.50 mm.

Sac of the ♂ similar to that of the ♀, but much smaller.

Pupa yellowish-pink or bright flesh colour; it is semiactive and shaped as in *Dactylopius citri*. Wing cases long, and extending to first abdominal segment.

*Hab.*: on fronds of *Trichomanes spicatum*, a West Indian filmy fern. Received from the Director of the Royal Gardens, Kew; January 27th, 1897.

The species may be recognised at a glance by the iridescent filaments which surround the sac.

I found a portion of a male, which unfortunately was much too imperfect to serve any scientific purpose. This is to be regretted, as we know so little of the ♂ of this genus. But, judging from the character of the pupa, I am convinced this insect is much more closely allied to *Dactylopius* than is *Ripersia fraxini*, Newst. In the latter the pupa is quite of a different form and absolutely inactive; and the larva is abnormal in the genus. I think, therefore, this insect may form the type of a new sub-genus under the name of *Apterococcus*. I shall state my reason for doing so in a later communication.

#### RIPERSIA MONTANA, n, sp.

♀ adult elongate-ovate. Antennæ (figs. 11, 12) stout, of six or seven joints (usually six); all with many short, stiff hairs; the formula for the six-jointed examples is 6321 (45), for the seven-jointed 721 (346) 5. In fig. 2 the hairs are broken away. Mentum biarticulate, apex widely rounded, bears a few fine hairs; filaments

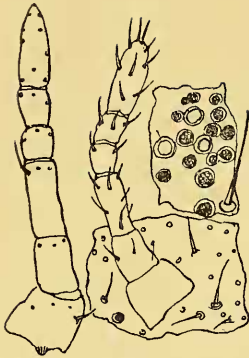


Fig. 11. Fig. 12. Fig. 13.

a little longer than the mentum. Legs stout, and longer than the antennæ; digitules of the tarsi very slightly dilated, those of the claw more strongly so. Anal ring of six hairs, which are about half the length of the long caudal setæ. Dermis (fig. 13) thickly set with tubular spinnerets, having compound orifices, which are smaller and concentrated at the marginal hairs near the posterior extremity of the body; there are also numerous hairs of varying length. Long, 2.75-3 mm.; wide, 1.25-1.75 mm.

Sac of the adult ♀ composed of a thick white felting; is of a more or less globular form, but frequently much distorted by contact with the roots and stems of its habitat.

Longest axis, 4-5 mm.; narrowest, 2 mm.

*Hab.*: on roots of grass and composites; Argentières, Haute Savoie, at 5000 feet; August, 1897. Collected by Mr. Brockton Tomlin, to whom I am indebted for the specimens.

In its large size and the character of the ovisac the species resembles *R. Tomlinii*, Newst.; but is distinguished by its stronger antennæ and legs, and by the numerous spinnerets and hairs on the dermis. The specimens examined were all old adults, I cannot, therefore, account for the variation in the number of antennal joints.

#### DACTYLOPIUS LONGIFILIS, T.-T.

The Director of the Royal Gardens, Kew, has kindly forwarded to me a quantity of coffee leaves and stems infested with this pest, together with the following extract from a letter addressed to him from Mr. A. Whyte, British Central African Administration, dated April 26th, 1897:—"I am sending you by this mail a small tin containing coffee leaves affected with the white bug, which has been very destructive to coffee this season wherever it appears, the branches get perfectly covered with it, and the leaves and berries fall off. What has been done by Mr. Mallock on Buchanan's Estates here is to cut the tree (which is not actually killed) down to within a short distance of the root, stump it in fact, carefully collecting and burning the affected leaves and branches, and burying the bugs which may have dropped off during the process. By this means it is checked, but at a great sacrifice, large black patches appearing here and there in what was formerly a fine regular plantation. New suckers are soon thrown up from the stump, and the one selected for the future tree, generally under such circumstances, gives a crop the second year \* \*."

The examples submitted to me for identification were collected at

Zomba, February 20th, 1897. In all my experience with *Coccidæ* I never saw a species so completely infested with parasites as this; quite 90 per cent of the females had been destroyed, and only shell-like fragments of their bodies and the ruptured ovisacs were left. A careful search among the *débris* at the bottom of the box revealed a couple of minute Hymenopterous insects and a small brown beetle. Whether the work of destruction can be assigned entirely to these insects is doubtful. Judging from the ruptured ovisacs I am inclined to think a larger insect had taken part in the work; but this could easily be verified in the field by a careful observer. We sincerely trust that Mr. Whyte will give this matter his attention, and be able to clear up this important part in the economy of the pest.

Chester: November 25th, 1897.

#### OAK GALLS.

BY G. C. BIGNELL, F.E.S.

Are small oak-trees comparatively free from gall-flies the year following an attack; or in other words, will a small oak-tree be attacked year after year by gall-flies?

I should like to know the opinion of readers of this Magazine on the above subject.

From my own observations I believe spring-gall-flies will not deposit their eggs on a small tree that had borne bud or bark galls the previous year.

In 1896 two young oaks, grown in pots over 20 years, were punished by my placing on them several flies of *Andricus corticis*, with the result that nearly all the young shoots were occupied by *Andricus gemmatus*; during the autumn after the departure of the flies the trees appeared to have recovered, and produced a fine lot of buds for the next year's growth; accordingly, in the spring of 1897, I placed on the same trees several *Andricus Sieboldii*; observing these did not take kindly to the surroundings, I placed a second lot on them, but to my surprise not a single one attempted to deposit an egg, neither would they remain on the trees, the only thing that both lots did was to try to escape from their confinement, apparently trying to avoid something very obnoxious.

Last autumn I obtained from a nursery some stunted young oaks, and placed them in pots with a view of carrying out some gall breeding; these, however, had borne a few *Cynips Kollari* galls, and